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## Testing of seating furniture according to EN 16139:2013 (3 appendices)

<b>Customer:</b>	Charles Strand Design AB
<b>Test object/ID:</b>	Swivelling chair/Atmosfär
<b>Test method:</b>	EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating. Test level 1
<b>Scope:</b>	Complete test
<b>Date of test:</b>	2016-05-25 – 2016-06-20
<b>Test result:</b>	The tested object passed the test
<b>Reservation:</b>	The test results in this report apply only to the particular Equipment Under Test (EUT)
<b>Test environment:</b>	23 ± 2°C and 50 ± 5% relative humidity
<b>Additional information:</b>	-

### SP Technical Research Institute of Sweden Sustainable Built Environment - Wood Technological Assessment

Performed by

Examined by

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#### Appendices

1. Test result (3 pages)
2. Description of test object (1 page)
3. Pictures (1 page)

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Appendix 1

**Test result**

Abbreviations: N/A = Not applicable  
N/T = Not tested

**Table 1**

1.	Safety	EN 16139	Result
1.1	<p><u>General requirements</u></p> <p>The seating shall be so designed as to minimise the risk of injury to the user.</p> <p>All accessible parts shall be so designed that physical injury and damage are avoided.</p> <p>This requirement is met when:</p> <ul style="list-style-type: none"> <li>a) accessible corners are rounded or chamfered;</li> <li>b) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded or chamfered;</li> <li>c) the edges of handles are rounded or chamfered in the direction of the force applied;</li> <li>d) all other edges are free from burrs and rounded or chamfered;</li> <li>e) the ends of hollow components are closed or capped.</li> </ul> <p>Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.</p> <p>It shall not be possible for any load bearing part of the seating to come loose unintentionally.</p> <p>All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use</p>	4.1	Pass
1.2	<p><u>Shear and squeeze points</u></p> <p>With the exception of tipping seats there shall be no shear and squeeze points created by parts of the seating operated by powered mechanisms, e.g. springs and gas lifts.</p> <p>There shall be no shear and squeeze points created by forces applied during normal use as well as during normal movements and actions</p> <p>Note!</p> <p>Shear and squeeze points that are created only during manually setting up and folding are acceptable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain.</p>	4.2	Pass
1.3	<p><u>Rolling resistance of the unloaded chair</u></p> <p>≥ 12 N when tested in accordance with EN 1335-3:2009, 7.4; and all castors are of the same type</p>	4.4	N/A

Appendix 1

**Table 2**

<b>2.</b>	<b>Stability</b>	<b>EN 1335-3</b>	<b>Result</b>
2.1	Front edge overturning	7.1.1	Pass
2.2	Forwards overturning	7.1.2	Pass
2.3	Forwards overturning for chairs with footrest	7.1.3	N/A
2.4	Sideways overturning for chairs without arm rests	7.1.4	Pass
2.5	Sideways overturning for chairs with arm rests	7.1.5	N/A
2.6	Rearwards overturning	7.1.6	Pass
2.7	Rearwards overturning for chairs with adjustable back rest inclination	7.1.7	Pass

**Table 3**

<b>3.</b>	<b>Strength, durability</b>	<b>Reference EN 1728</b>	<b>Cycles</b>	<b>EN 16139 level 1</b>	<b>Result</b>
3.1	Seat and back static load test	6.4	10	Seat: 1600 N Back: 560 N	Pass
3.2	Seat front edge static load test	6.5	10	1300 N	Pass
3.3	Vertical static load on back rests	6.6	10	600 N Seat: 1300 N	N/A
3.4	Foot rest and leg rest static load test	6.8 and 6.9	10	1300 N	N/A
3.5	Arm sideways static load test	6.10	10	400 N	N/A
3.6	Arm downwards static load test	6.11	5	750 N	N/A
3.7	Vertical upwards static load on arm rests for stackable seating	6.13.2	10	250 N	N/A
3.8	Vertical upwards static load on arm rests for seating which may be moved when occupied	6.13.1	10	1200 N	N/A

Appendix 1

<b>3.</b>	<b>Strength, durability</b>	<b>Reference EN 1728</b>	<b>Cycles</b>	<b>EN 16139 level 1</b>	<b>Result</b>
3.9	Seat and back durability test	6.17	100 000	Seat: 1000N Back: 300 N	Pass
3.10	Seat front edge durability test	6.18	50 000	800 N	Pass
3.11	Arm durability test	6.20	30 000	400 N	N/A
3.12	Foot rest durability test	6.21	50 000	1000 N	N/A
3.13	Leg forward static load test	6.15	10	500 N Seat: 1000 N	Pass
3.14	Leg sideways static load test	6.16	10	400 N Seat: 1000 N	Pass
3.15	Seat impact test	6.24	10x2	240 mm	Pass
3.16	Back impact test	6.25	10	210 mm/38°	Pass <sup>1</sup>
3.17	Arm impact test	6.26	10	210 mm/38°	N/A
3.18	Auxiliary writing surface static load test	6.14	10	300 N	N/A
3.19	Auxiliary writing surface durability test	6.22	10 000	150 N	N/A

<sup>1</sup> Test conducted at the height of 800 mm from the floor (the rearmost point of the backrest)

## Appendix 2

### Description of test Object

Test object/ID: Swivelling chair/Atmosfär

#### Dimensions

Width: 770 mm  
Depth: 750 mm  
Height: 1370 mm  
Seat height: 480 mm  
Mass: 34.8 kg

#### Components

Seat shell: Fiberglass with polyester  
Seat and back cushion: Polyether  
Base: Five-spoke base in metal tube Ø32 mm  
Armrest: -  
Footrest: -  
Castors: -  
Upholstery: Fabric

Sampling: The test object was selected by the customer  
Date of arrival at  
SP test laboratory: 2016-04-21  
Observed defects before testing: No defects

Appendix 3

**Pictures**



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**